



Crumbs don't lie: Using AI video analysis to understand snacking behaviour

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AI can transform consumer videos into scalable behavioural data, but researchers remain essential for deciding what matters and what it means.

BACKGROUND

Many behaviours that shape product experience happen automatically and are rarely articulated by consumers. Rituals like dunking, sharing and beverage pairing matter to enjoyment, yet are hard to capture through conventional research. Consumer-generated video offers rich evidence, but coding large volumes of footage is time-intensive and hard to scale.

Recent advances in AI video analysis, beyond transcription, can turn unstructured footage into structured behavioural data, letting researchers observe and quantify real-world behaviour more efficiently. pladis partnered with MMR to test whether this could deepen understanding of sweet snacking occasions and reveal actions consumers may not consciously report.

RESEARCH OBJECTIVES

- Objective 1:** Evaluate AI-enabled video analysis as a research tool
- Objective 2:** Understand how consumers dunk and consume biscuits in real life

STUDY DESIGN

- UK study using consumer-generated video, pre-screened as regular dunkers.
- Around 100 short clips (~65 mins) analysed as a methodological experiment.
- Participants completed a natural dunking occasion at home, followed by a short online survey.

CONSUMER TASK

- Prepare a hot drink and choose a biscuit they would normally eat.
- Record themselves dunking and eating it, behaving as naturally as possible.
- Capture the full occasion on video and upload the footage for analysis.

By design, participants used a biscuit from home, giving authentic behaviour but an uncontrolled stimulus. Over 70 different products appeared across 100 videos, so findings describe dunking behaviour in general, not any single biscuit or format. A controlled follow-up would enable product-level comparison.

TECHNOLOGY

Built by MMR for product experience research: Turns consumer video into structured behavioural data.

One shared rubric: Unstructured videos become comparable behavioural data

Multimodal: Combines what is seen, said and timed into one read per clip.

Batch scale: Hundreds of videos in one hands-off job, days become hours.

Secure: Runs inside MMR's own environment, no client data leaves the platform.

ANALYSIS

- AI worked through each video scene by scene, capturing the small everyday actions that shape how people dunk.
- These observed behaviours became a structured dataset, making habitual moments visible and measurable.
- Dunking behaviours and timing were quantified against a 13-point rubric across all videos.
- The behavioural data was combined with participants' survey responses.
- Researchers then reviewed and interpreted the findings, adding the context and meaning behind the numbers.

FINDINGS

Thematic analysis of ai-generated behavioural descriptions

The tool generated a narrative description of what it observed in each video, which could be themed like open-ended survey responses.

CONCLUSIONS

AI video analysis added speed and depth, turning unstructured video into a structured, themeable dataset at a scale impractical to code by hand. By making the ritual layer of behaviour visible and actionable, it builds evidence and consumer empathy while improving efficiency.

Most common	Less common but recurring	Most unique
Milky drink, short vertical dunks to half depth, then dunk, bite and re-dunk the bitten edge until eaten in a few bites.	More dunks or longer soaks, with stirring, edge rotation or finger licking, often on residue-heavy biscuits.	Spoon-assisted dunking, very high dunk counts or long soaks, and non-standard products like KitKats

AI captured subtle ritual behaviours beyond what surveys report

researchers watched a sample first and defined these behaviours for the AI. They surfaced only because a human decided they mattered:

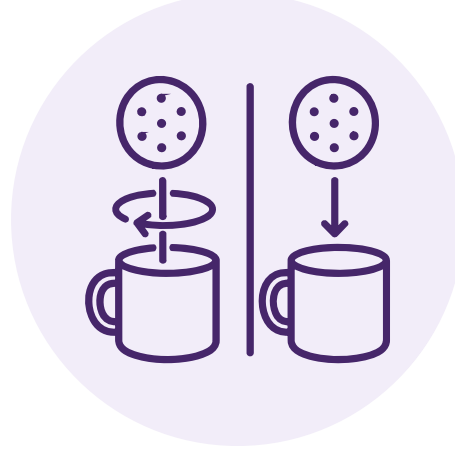
Finger licking as residue management



Rotating vs re-dunking the bitten edge



Dunking motion: vertical dip versus circular stir



AI can only analyse what researchers define

with no definition, our open "anything unusual" point flagged filming incidentals (packaging, gesturing to the camera, a dog wandering in) rather than ritual. Well-defined variables worked well; open ones need a human definition first.

AI performed best on observable, well-defined behaviours

Confidence tiers reflect researcher review of AI outputs against source videos and survey responses. They represent practical confidence rather than formal reliability testing.

Worked well	Needed more researcher interpretation
Biscuit type Beverage type Dunk duration Bite count Dunking motion	Finger licking Outcome after dunking Dunk depth Anything unusual

Clearly observable behaviours were captured most consistently, while interpretive measures continued to depend on researcher judgement.

VALUE OF RESEARCHER-IN-THE-LOOP

The researcher decides what matters: watching a sample first let the team define nuances like finger licking, rotation and dunking motion, which surfaced only because a human flagged them.

Human interpretation adds meaning: AI quantified the behaviour, but researchers gave it context and caught misclassifications. AI scales the observation; the researcher shapes the lens.

PRACTICAL VALUE

AI rapidly analyses hundreds of consumer videos, turning them into scalable behavioural datasets, uncovering observable rituals that surveys often miss while allowing researchers to focus on what the behaviours mean.

View
illustrative
videos



It is best understood as a qualitative aid rather than a quantitative observational instrument, with some variables suitable for reporting and others best used directionally. Its value is greatest when a researcher defines what to look for, interprets what it surfaces, and knows which outputs to trust.